

IN THE CLAIMS:

Please amend claim 71 and add new claim 104 as follows:

1. (Previously canceled)
2. (Previously canceled)
3. (Previously amended) The microelectronic spring structure of Claim 73, wherein an end of said beam has an unloaded height over said electronic component in the range of 1 to 5 mils.
4. (Previously amended) The microelectronic spring structure of Claim 73, wherein an end of said beam has an unloaded height over said electronic component less than about 2 mils.
5. (Previously amended) The microelectronic spring structure of Claim 73, wherein said beam has a width in the range of about 6 to 12 mils.
6. (Previously amended) The microelectronic spring structure of Claim 73, wherein said beam has a width no greater than 5 mils at said base.
7. (Previously withdrawn) The microelectronic spring structure of Claim 6, wherein said beam has a width less than about 1 mil.
8. (Previously withdrawn) The microelectronic spring structure of Claim 73, wherein said beam has a length in the range of about 1 to 10 mils.
- 9-12. (Previously canceled)
13. (Previously amended) The microelectronic spring structure of Claim 73, wherein said microelectronic spring structure has an elastic deflection ratio in a direction perpendicular to and towards said electronic component of at least 10%.

14. (Previously amended) The microelectronic spring structure of Claim 73, wherein said microelectronic spring structure has an elastic range in a direction perpendicular to and towards said electronic component within a range of about one to twenty mils.

15. (Previously canceled)

16. (Previously canceled)

17. (Previously amended) The microelectronic spring structure of Claim 73, wherein said microelectronic spring structure has a spring rate at an end thereof in at least one direction within a range of about 30 to 600 micrograms per micron.

18. (Previously canceled)

19. (Previously amended) The microelectronic spring structure of Claim 71, wherein said beam is contoured in a lengthwise direction.

20. (Previously canceled)

21. (Previously amended) The microelectronic spring structure of Claim 71, wherein said cross-sectional width is generally V-shaped.

22-24. (Previously withdrawn)

25. (Previously amended) The microelectronic spring structure of Claim 71, wherein said beam, in a lengthwise sectional view, has a stepped portion connected to said base.

26. (Previously amended) The microelectronic spring structure of Claim 25, wherein said stepped portion of said beam has a step height in the range about 5% to 20% of an unloaded height of an end of said beam over said electronic component.

27. (Previously amended) The electronic component of Claim 25, wherein said stepped portion of said beam has a step height about 10% of an unloaded height of an end of said beam over said electronic component.

28-37. (Previously withdrawn)

38. (Previously amended) The microelectronic spring structure of Claim 71, wherein said base and said beam are integrally formed.

39. (Previously canceled)

40. (Previously canceled)

41. (Previously amended) The microelectronic spring structure of Claim 71, wherein said beam, viewed in a direction normal to said electronic component, is tapered so as to have a generally triangular shape.

42-47. (Previously withdrawn)

48. (Previously amended) The microelectronic spring structure of Claim 71, wherein said base and said beam are integrally formed and comprise a resilient material.

49. (Previously canceled)

50. (Previously canceled)

51. (Previously amended) The microelectronic spring structure of Claim 71, wherein said base and said beam are integrally formed and comprise a layer of an electrically conductive seed material and a layer of electroplated metallic material.

52-70. (Previously canceled)

71. (Currently amended) A microelectronic spring structure comprising:
a base secured to a terminal of an electronic component; and
a beam extending from said base and spaced from said electronic component, a cross-sectional width of said beam being contoured to ~~increase an area moment of inertia of said beam~~.
72. (Previously presented) The microelectronic spring structure of Claim 71, wherein said electronic component is a semiconductor die.
73. (Previously presented) The microelectronic spring structure of Claim 72, wherein said semiconductor die is one of a plurality of semiconductor dice composing an unsingulated semiconductor wafer.
74. (Previously presented) An electronic component comprising:
a terminal; and
a contact structure comprising:
a base secured to said terminal; and
a beam extending from said base and spaced from said electronic component, a cross-sectional width of said beam contoured in a "V" shape.
75. (Previously presented) The electronic component of Claim 74, wherein said electronic component is a semiconductor die.
76. (Previously presented) The electronic component of Claim 75, wherein said semiconductor die is one of a plurality of semiconductor dice composing an unsingulated semiconductor wafer.
77. (Previously presented) The electronic component of Claim 74, wherein said beam is contoured along a length thereof.
78. (Previously presented) The electronic component of Claim 74, wherein said beam has a generally triangular shape.

79. (Previously presented) The electronic component of Claim 74, wherein said base and said beam are integrally formed.

80. (Previously presented) The electronic component of Claim 79, wherein said base and said beam comprise a resilient material.

81. (Previously presented) The electronic component of Claim 79, wherein said base and said beam comprise a layer of seed material and a layer of electroplated metallic material.

82. (Previously presented) The electronic component of Claim 74 further comprising a plurality of said terminals and a plurality of said contact structures.

83. (Previously withdrawn) A method of forming a contact structure on a terminal of an electronic component, said method comprising:

forming a patterned sacrificial material on said electronic component, said sacrificial material patterned to include an opening over said terminal defining a base of said contact structure and a molded surface defining a beam of said contact structure, said molded surface contoured to define a cross-sectional-width contour for said beam to increase an area moment of inertia of said beam;

forming said contact structure in said opening and on said molded surface; and
removing said sacrificial material from said electronic component.

84. (Previously withdrawn) The method of Claim 83, wherein said step of forming said contact structure comprises:

depositing a seed material; and
depositing a contact structure material on said seed material.

85. (Previously withdrawn) The method of Claim 84, wherein said step of depositing a contact structure material comprises electroplating said contact structure material on said seed material.

86. (Previously withdrawn) The method of Claim 83, wherein said step of forming said contact structure comprises:

depositing a seed material over said sacrificial material;

forming a patterned masking material over said seed material, said masking material patterned to have an opening corresponding to said opening in said sacrificial material and said molded surface of said sacrificial material; and

depositing a contact structure material on said seed material exposed through said opening in said masking material.

87. (Previously withdrawn) The method of Claim 86, wherein said step of depositing a contact structure material comprises electroplating said contact structure material on said seed material.

88. (Previously withdrawn) The method of Claim 83, wherein said step of forming a patterned sacrificial material comprises:

depositing a layer of sacrificial material on said electronic component; and

stamping said sacrificial material to form said opening and said molded surface.

89. (Previously withdrawn) The method of Claim 83, wherein said electronic component is a semiconductor die.

90. (Previously withdrawn) The method of Claim 89, wherein said semiconductor die is one of a plurality of semiconductor dice composing an unsingulated semiconductor wafer.

91. (Previously withdrawn) The method of Claim 83 further comprising forming a plurality of said contact structures on a plurality of terminals of said electronic component, wherein said step of forming a patterned sacrificial material on said electronic component comprises:

patterning said sacrificial material to include a plurality of openings over said plurality of terminals, each opening defining a base of one of said plurality of said contact structures, and

forming a plurality of molded surfaces, each defining a beam of one of said contact structures, each said molded surface contoured to define a cross-sectional width for said beam to increase an area moment of inertia of said beam;

said method further comprising forming said plurality of contact structures each in one of said openings and on one of said molded surfaces.

92. (Previously withdrawn) The method of Claim 83, wherein said molded surface is further contoured to define lengthwise contour for said beam.

93. (Previously withdrawn) The method of Claim 92, wherein said lengthwise contour comprises a compound curve.

94. (Previously withdrawn) The method of Claim 92, wherein said lengthwise contour comprises corrugations.

95. (Previously withdrawn) The method of Claim 83, wherein said cross-sectional-width contour is generally "V" shaped.

96. (Previously withdrawn) The method of Claim 83, wherein said cross-sectional-width contour is generally "U" shaped.

97. (Previously withdrawn) The method of Claim 83, wherein said cross-sectional-width contour comprises a rib.

98. (Previously withdrawn) The method of Claim 97, wherein said cross-sectional-width contour comprises a plurality of ribs.

99. (Previously withdrawn) The method of Claim 83, wherein said beam, viewed in a direction normal to a surface of said electronic component, is generally triangular shaped.

100. (Previously withdrawn) The method of Claim 83, wherein said beam, viewed in a direction normal to a surface of said electronic component, comprises a serpentine shape.

101. (Previously withdrawn) The method of Claim 83, wherein said beam, viewed in a direction normal to a surface of said electronic component, comprises a "C" shape.

102. (Previously withdrawn) The method of Claim 83, wherein said beam, viewed in a direction normal to a surface of said electronic component, comprises a "U" shape.

103. (Previously withdrawn) The method of Claim 83, wherein said beam, viewed in a direction normal to a surface of said electronic component, comprises an "S" shape.

104. (New) The microelectronic spring structure of Claim 71, wherein said cross-sectional width of said beam is contoured to increase an area moment of inertia of said beam relative to a beam having a solid non-contoured rectangular cross-section and an equivalent mass and width.